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10/552,105	10/03/2005	Santanu Dutta	US030083US2	4183

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EXAMINER	
CRAWFORD, JACINTA M	
ART UNIT	**PAPER NUMBER**
2628	

NOTIFICATION DATE	DELIVERY MODE
09/02/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ip.department.us@nxp.com

Office Action Summary	Application No.	Applicant(s)	
	10/552,105	DUTTA ET AL.	
	Examiner	Art Unit	
	JACINTA CRAWFORD	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art, AAPA (Background and Figures 1 and 2) in view of Baldwin (US 5,798,770).

As to claim 1, Applicant's Admitted Prior Art discloses a processing system comprising: a plurality of pipelines, each pipeline of the plurality of pipelines including a plurality of core pipeline elements that are configured to sequentially process data as it traverses the pipeline (Figures 1 and 2; Background, paragraph 1).

Applicant's Admitted Prior Art differs from the invention defined in claim 1 in that Applicant's Admitted Prior Art does not disclose a plurality of auxiliary

elements, each auxiliary element of the plurality of auxiliary elements being configured to be selectively coupled, responsive to external coupling select signals, between a pair of core pipeline elements of the plurality of core pipeline elements to process the data as it traverses between the pair of core elements.

Baldwin discloses a plurality of auxiliary elements (e.g. fog of Figure 2C), each auxiliary element of the plurality of auxiliary elements being configured to be selectively coupled, responsive to external coupling select signals, between a pair of core pipeline elements of the plurality of core pipeline elements to process the data as it traverses between the pair of core elements (abstract; Figure 2B notes multiplexer used to signal certain units to be enabled or disabled for processing; column 31, lines 1-67 notes the function of each unit within pipeline; column 9, line 58 thru column 11, line 65: note specifically column 10, lines 28-29 and column 11, lines 41-42 notes an instance where certain elements/units may be disabled during processing).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Applicant's Admitted Prior Art's pipelines with Baldwin's method of dynamically reconfiguring pipelines to enhance the performance and flexibility of processing data in a pipeline and to eliminate unnecessary processing.

As to claim 2, Applicant's Admitted Prior Art modified with Baldwin disclose the processing system wherein the data includes at least one of: video data and graphics data (AAPA, Background, paragraphs 1 and 2).

As to claim 3, Applicant's Admitted Prior Art modified with Baldwin disclose the processing system wherein the data that is provided to two or more of the pipelines corresponds to a common image (AAPA, Background, paragraph 2).

As to claim 4, Applicant's Admitted Prior Art modified with Baldwin disclose the processing system wherein the data that is provided to two or more of the pipelines corresponds to different images (AAPA, Background, paragraph 2).

As to claim 5, Applicant's Admitted Prior Art modified with Baldwin disclose the processing system wherein the plurality of core pipeline elements include at least one of: a pixel acquisition element, a pixel formatter, a chroma-keying element, an un-ditherer, a chroma-upsampler, a linear interpolator, a contrast balancer and a color-space converter (Baldwin, Figure 2C; column 31, lines 1-67 notes the function of each unit within pipeline which can be compared to the core elements above, e.g. the "color format" unit can be considered "pixel formatter and un-ditherer").

As to claim 6, Applicant's Admitted Prior Art modified with Baldwin disclose the processing system wherein the plurality of auxiliary elements include at least one of: a color-lookup table, a color-transient-improver, a sample-rate up-converter, a histogram-modifier, a luminance-sharpener, and a color-feature module (Baldwin, Figure 2C; column 31, lines 1-67 notes the function of each unit within pipeline which can be compared to the core elements above, e.g. the "color DDA" can be considered "color feature module and color-lookup table").

As to claim 7, Applicant's Admitted Prior Art modified with Baldwin disclose the processing system wherein the plurality of auxiliary elements include at least one of: a color-lookup table, a color-transient-improver, a sample-rate up-converter, a histogram-modifier, a luminance-sharpener, and a color-feature module (Baldwin, Figure 2C; column 31, lines 1-67 notes the function of each unit within pipeline which can be compared to the core elements above, e.g. the "color DDA" can be considered "color feature module and color-lookup table").

As to claim 8, Applicant's Admitted Prior Art modified with Baldwin disclose the processing system wherein each auxiliary element is configured to be selectively coupled between a predetermined pair of core pipeline elements of the plurality of core pipeline elements (Baldwin, Figures 2A-2F notes the pipeline to be ordered within a specific manner and certain units are enabled or disabled within the pipeline; therefore it can be considered that the auxiliary

elements can be selectively coupled between a predetermined pair of core elements).

As to claim 9, Applicant's Admitted Prior Art modified with Baldwin disclose the processing system wherein each auxiliary element includes: a function module, and a switch, wherein the switch is configured to select among the plurality of pipelines for the selective coupling of the auxiliary element to a select pipeline (Baldwin, Figure 2B, column 62, lines 6-7 notes "multiplexer" to perform selection function and enable and disable units within the pipeline).

As to claim 10, Applicant's Admitted Prior Art modified with Baldwin disclose the processing system including a register that is configured to control the selective coupling of the auxiliary elements into the plurality of pipeline responsive to the external coupling-select signals (Baldwin, column 62, lines 3-6 notes a "switching device" which receives signals from the "multiplexer" to also control the order of processing, see column 60, lines 25-34).

As to claim 11, Applicant's Admitted Prior Art modified with Baldwin disclose the processing system including: a data fetch module (110) operably coupled to each of the pipelines, that is configured to facilitate acquisition of the data, and a mixer (150) operably coupled to each of the pipelines, that is configured to merge the data from two or more pipelines of the plurality of pipelines (AAPA,

Figures 1 and 2).

As to claim 12, Applicant's Admitted Prior Art modified with Baldwin disclose the processing system comprising a plurality of pipelines (AAPA, Figures 1 and 2) wherein the plurality of auxiliary elements can be coupled to the pipeline (Baldwin, Figure 2C), but do not disclose the auxiliary elements to include a number of duplicate copies of a functional element, and the number of duplicate copies of the functional element is less than a number of pipelines in the plurality of pipelines.

However, it would have been obvious to one of ordinary skill in the art at the time of the invention to further modify Applicant's Admitted Prior Art modified with Baldwin's dynamic reconfigurable pipeline to include duplicate copies of a functional element to be able to provide the pipelines with the proper processing elements on demand without having to wait to use a element/unit already in use which will decrease rendering time and ultimately increase the performance of the overall system.

As to claim 13, Applicant's Admitted Prior Art modified with Baldwin disclose the processing system including a controller that facilitates the selective coupling of the auxiliary elements into the plurality of pipelines responsive to the external coupling-select signals (Baldwin, Figure 2B notes the "host" to

send commands and messages to control the processing; Figures 5A-5C notes a "router unit" used to configure the order of processing).

As to claim 14, Applicant's Admitted Prior Art modified with Baldwin disclose the processing system wherein the controller is configured to effect the selective coupling upon commencement of an application that is executed via the processing system (Baldwin, column 7, line 5 thru column 8, line 64; column 60, lines 1-46).

As to claim 15, Applicant's Admitted Prior Art discloses an integrated circuit comprising a plurality of homogeneous pipelines (Figure 1), but does not disclose a controller that is configured to enable a modification, responsive to external coupling-select signals, of one or more pipelines of the plurality of homogeneous pipelines to produce a plurality of heterogeneous pipelines.

Baldwin discloses a controller that is configured to enable a modification, responsive to external coupling-select signals, of one or more pipelines of the plurality of homogeneous pipelines to produce a plurality of heterogeneous pipelines (abstract notes reconfiguring a pipeline by enabling and disabling elements/units; Figure 2B notes multiplexer used to signal certain units to be enabled or disabled for processing; column 9, line 58 thru column 11, line 65:

note specifically column 10, lines 28-29 and column 11, lines 41-42 notes an instance where certain elements/units may be disabled during processing).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Applicant's Admitted Prior Art pipelines with Baldwin's method of dynamically reconfiguring pipelines to enhance the performance and flexibility of processing data in a pipeline and to eliminate unnecessary processing.

As to claim 16, Applicant's Admitted Prior Art modified with Baldwin disclose the integrated circuit including one or more auxiliary elements that are configured to be selectively inserted within the one or more pipelines by the controller to produce the plurality of heterogeneous pipelines (Figure 2C notes elements/units that can be selected to be inserted within the pipeline).

Response to Arguments

3. Applicant's arguments, see pages 5-8, filed June 5, 2008, with respect to the rejection(s) of claim(s) 1-16 under 35 U.S.C. 103 claim rejection has been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Baldwin (US 5,798,770).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JACINTA CRAWFORD whose telephone number is (571)270-1539. The examiner can normally be reached on M-F 8:00a.m. - 5:00p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kee Tung can be reached on (571) 272-7794. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jacinta Crawford/
Examiner, Art Unit 2628

/Kee M Tung/
Supervisory Patent Examiner,

Art Unit 2628